(12) UK Patent Application (19) GB (11) 2 209 111 (13) A

(43) Date of A publication 04.05.1989

(21) Application No 8720450.9

(22) Date of filing 28.08.1987

(51) INT CL⁴
A01G 17/12

(52) UK CL (Edition J)
A1E EAD
E2A AGM A372 A373

(56) Documents cited
GB 1367502 A GB 0529431 A US 4366647 A
US 4222198 A US 3875620 A

(58) Field of search
UK CL (Edition J) A1E, A3V, E2A
INT CL⁴ A01G

(71) Applicant
Norman David Weiss
The Weiss Group, 250 Kings Road, London, SW3 5UE, United Kingdom

(72) Inventor
Norman David Weiss

(74) Agent and/or Address for Service
Laurence Shaw
George House, George Road, Birmingham, B15 1PG, United Kingdom

(54) Tree and plant ties

(57) A plant tie comprises a support portion to engage a support S and a plant retaining portion to encircle the stem of the plant P and arranged to increase in diameter as the plant stem increases in diameter. The tie may comprise a strap with holes H1, H2 and latch portions L1, L2. In use the tie is passed about a stake and latch end passed through hole H2 until a shoulder E2 engages a wall of the hole to lock the tie. The latch end is then passed about the tree trunk and through hole H1 so that a shoulder E1 engages the hole wall. As the tree grows the expanding trunk forces the tie up ramp R1 until next outer shoulder E1 engages the wall.

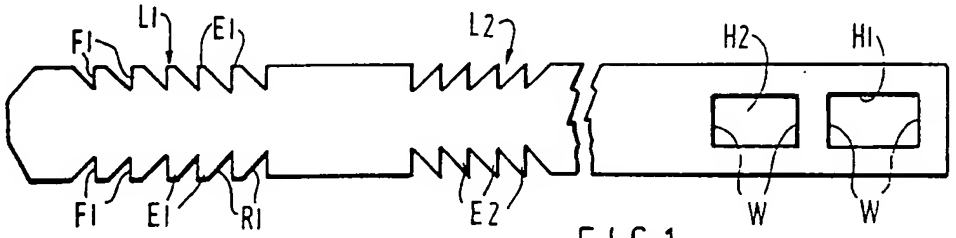

FIG.1

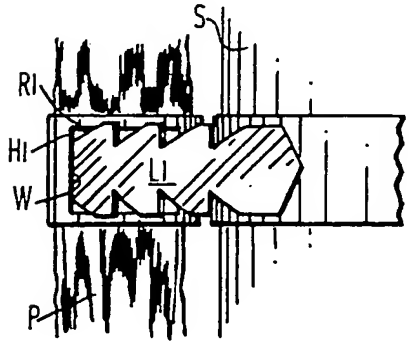

FIG.4

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

The claims were filed later than the filing date within the period prescribed by Rule 25(1) of the Patents Rules 1982.

GB 2 209 111 A

2209111

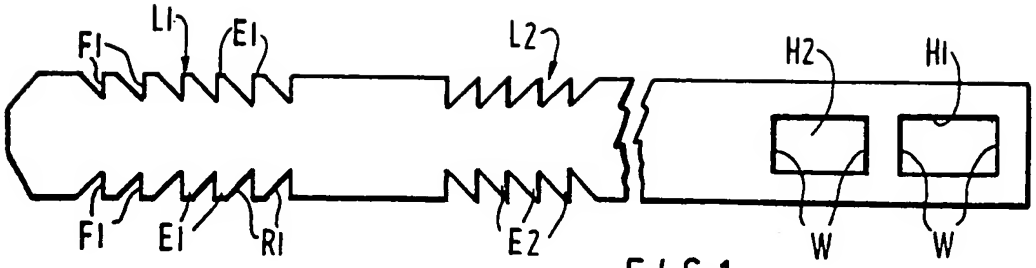

FIG.1

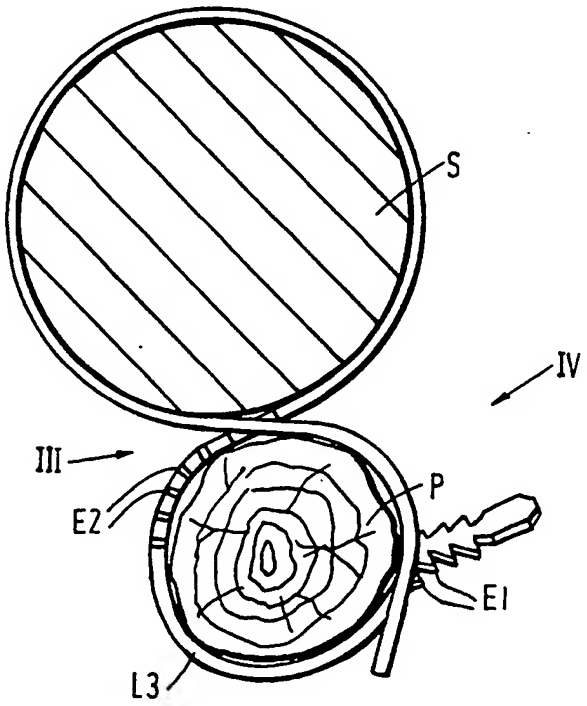

FIG.2

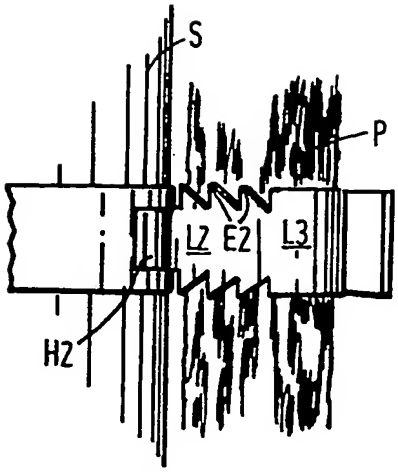

FIG.3

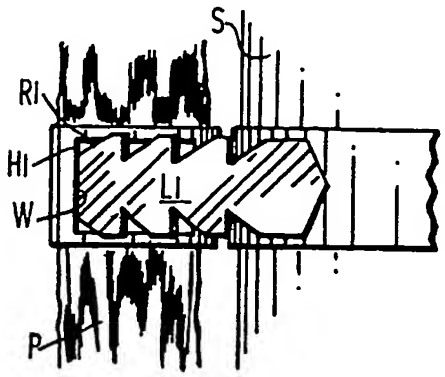

FIG.4

2209111

IMPROVED PLANT TIE

The invention relates to a plant tie, and in particular to a plant tie adapted to retain the position of a growing plant, especially a young tree, relative to a support.

It is one object of the invention to provide an improved plant tie which will automatically continue to retain the plant in a desired position, irrespective of an increase in plant diameter as the plant continues to grow.

According to one aspect of the invention there is provided a plant tie, comprising

a support portion adapted to engage a support, and

a plant retaining portion adapted to be placed about a portion of the plant, the retaining portion being arranged to increase in diameter as that plant portion increases in diameter.

A tie of the invention is adapted to retain the plant, especially a young plant such as a tree growing in diameter as well as height, with respect to a stake. In contrast to existing plant ties which tend to restrict plant growth and even cause death or wind snap, a plant tie of the invention will expand with an increase in plant diameter.

Most preferably the tie is made in one piece and is adapted so that it may be connected to both the support and the plant without the use of tools. For this purpose I prefer to employ a strap and buckle type connection.

In a much preferred feature of the invention there is provided a tie for use in holding a young plant to a stake, the tie comprising a length of weatherproof material, a first hole being present towards one end of the tie, a second hole adjacent the first, a first latch portion towards the other end of the tie, the first latch portion having spaced apart latching positions, a second latch portion spaced from the first, the second latch portion having spaced apart locking positions, the tie being arranged such that it may be looped around the stake and the latch end of the tie being passed through the second hole to cause the second latch portion to lock therein, the latch end of the tie then being looped about the trunk of the young plant and the first latch portion received and latched

in the first hole such that the increase in diameter of the trunk causes the first latch portion to be moved from one latch position to another.

In order that the invention may be well understood it will now be described by way of example with reference to the accompanying diagrammatic drawings, in which

Figure 1 is a side elevation of one tie

Figure 2 is a sectional view of a tie in use

Figure 3 is a partial side elevation taken on arrow III; and

Figure 4 is a partial side elevation taken on arrow IV

The tie comprises a length of weatherproof material such as plastics or rubber, optionally fibre-reinforced. At one end, the right hand end as seen in Figure 1, there is a pair of holes H1 and H2 which are generally rectangular as seen in plan, so that they have straight walls W. At the other end is a pair of latch portions L1 and L2, spaced apart by an intermediate length L3. Each of the latch portions has

longitudinally spaced apart latch shoulders E1 and E2, respectively, adapted to engage a wall W of one of the holes. The shoulders E2 of the latch portion L2 are of locking shape, and arranged so that when received in the hole, tension on the intervening length of the tie will tend to tighten the latching engagement. The shoulders E1 of the latch portion 1 are of a different shape, each having flats F1 and ramps R1. When the latch portion L1 is received in a hole with the flats F1 abutted against a wall W, the ramp portions R1 of the adjacent shoulder E1, tension applied to the intervening length of the tie (L3) will tend to ride up the ramps R1 until the next flats F1 are abutted against the wall of the hole.

In use, the tie is passed about a stake S, such as a length of wood or metal, and the latch end passed through the hole H2 until one of the latching shoulders E2 engages a wall of the hole to lock the tie to the stake (see Figure 3). The latch end of the tie is then passed about the trunk of a young tree P, and passed through the hole H1, so bringing the intermediate portion L3 about the trunk. The latch end is tightened until the narrower end of one of the latch shoulders E1 is engaged with the wall W of the hole H1 (see Figure 4). As the tree grows and the trunk expands in diameter the radial force tends to urge the tie to move up the ramps R1 until the next outer latch shoulder E1 engages

the wall of the hole H1. In this way the tie keeps pace with the growing of the plant, and will support it for several years. There will come a time when the plant diameter exceeds the diameter of the tie and then the ends of the strap will separate and the strap will simply hang down. By that time however the plant will be self supporting and the tie no longer required. The stake and the tie may be recovered for use again.

The invention is not limited to the embodiment shown. For example, further holes may be present, especially to accommodate plants of increased diameter. Also, the tie may be used for plants other than trees such as roses, and in gardening and horticulture generally.

CLAIMS

1. A plant tie comprising a support portion adapted to engage a support (S) and a plant retaining portion adapted to be placed about a portion of a plant (P), the retaining portion being arranged to increase in diameter as the portion of the plant (P) increases in diameter.

2. A plant tie according to Claim 1, characterised in that the tie comprises a length of material having at one end a female engaging means (H1) and at the other end a plurality of longitudinally spaced apart male engaging means (E1) the ends of the ties being interengagable about the plant (P) in use with the female means (H1) in engagement with one of the male means (E1) selected according to the diameter of the plant (P) at the time, the interengagement being arranged so that as the plant (P) increases in diameter with growth, the tie moves until the succeeding male means (E1) engages the female means (H1)

3. A plant tie according to Claim 2 characterised in that the female engaging means comprises a hole (H1) and the male engaging means (E1) are each adapted to latchingly

engage a wall (W) of the hole (H1).

4. A plant tie according to Claim 3 characterised in that each male engaging means (E1) comprises a ramp portion (R1) inclined towards the longitudinal axis of the tie, the ramp portion being shaped so that as the diameter of the plant (P) increases the wall (W) of the hole (H1) moves up the ramp portion (R1) until the wall (W) engages the succeeding ramp portion (R1).

5. A plant tie according to Claims 3 or 4 characterised in that a second hole (H2) is present adjacent the first hole (H1), and a plurality of longitudinally spaced apart locking members (E2) are longitudinally spaced from the male engaging means (E1).

6. A plant tie according to Claims 2, 3, 4 or 5 characterised in that the holes (H1, H2) are rectangular in plan.

7. A plant tie according to any preceding Claim characterised in that the tie is made in one piece.

8. A plant tie according to any preceding Claim

characterised in that the tie is made of plastics or rubber.

9. A plant tie substantially as described with reference to the drawings.

Amendments to the claims
have been filed as follows

1. A plant tie comprising a support portion adapted to engage a support (S) and a plant retaining portion adapted to be placed about a portion of a plant (P), the retaining portion being arranged to increase in diameter as the portion of the plant (P) increases in diameter until the plant diameter exceeds that of the retaining portion when the retaining portion separates from the plant (P).

2. A plant tie according to Claim 1 characterised in that the tie comprises a length of material having at one end a female engaging means (H1) and at the other end a plurality of longitudinally spaced apart male engaging means (E1) the ends of the ties being interengagable about the plant (P) in use with the female means (H1) in engagement with one of the male means (E1) selected according to the diameter of the plant (P) at the time, the interengagement being arranged so that as the plant (P) increases in diameter with growth, the tie moves until the succeeding male means (E1) engages the female means (H1).

3. A plant tie according to Claim 2 characterised in that the female engaging means comprises a hole (H1) and the male engaging means (E1) are each adapted to latchingly engage a wall (W) of the hole (H1).

4. A plant tie according to Claim 3 characterised in that each male engaging means (E1) comprises a ramp portion (R1) inclined towards the longitudinal axis of the tie, the ramp portion being shaped so that as the diameter of the plant (P) increases the wall (W) of the hole (H1) moves up the ramp portion (R1) until the wall (W) engages the succeeding ramp portion (R1).

5. A plant tie according to Claims 3 or 4 characterised in that a second hole (H2) is present adjacent the first hole (H1), and a plurality of longitudinally spaced apart locking members (E2) are longitudinally spaced from the male engaging means (E1).

6. A plant tie according to Claims 2, 3 or 4 characterised in that the holes (H1, H2) are rectangular in plan.

7. A plant tie according to any preceding Claim characterised in that the tie is made in one piece.

8. A plant tie according to any preceding Claim characterised in that the tie is made of plastics or rubber.

9. A plant tie substantially as described with reference to the drawings.

Published 1988 at The Patent Office, State House, 66 71 High Holborn, London WC1R 4TP. Further copies may be obtained from The Patent Office, Sales Branch, St Mary Cray, Orpington, Kent. Con. 1/87.